



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

THIRD YEAR SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL STUDIES AND COMMUNITY DEVELOPMENT

ENS 331: REMOTE SENSING FOR ENVIRONMENTAL SCIENCES

DATE: 24/9/2019

TIME: 8:30 – 10:30 AM

INSTRUCTIONS: Answer question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Citing relevant examples, explain the following concepts
- i) Remote sensing (2 marks)
 - ii) Electromagnetic spectrum (2 marks)
 - iii) Atmospheric windows (2 marks)
 - iv) Visual image interpretation (2 marks)
 - v) Digital image processing (2 marks)
- b) Discuss the key resolution characteristics of remotely sensed imagery and how they affect application of the data in environmental management (12 marks)
- c) Explain the digital image processing approaches that are used in remote sensing data application (8 marks)

QUESTION TWO (20 MARKS)

- a) Explain the key elements used in visual image interpretation. (10 marks)
- b) Discuss the major components of Remote Sensing process and their relevance. (10 marks)

QUESTION THREE (20 MARKS)

Discuss how you can use remote sensing to map forest cover in your county.

QUESTION FOUR (20 MARKS)

- a) Discuss the different types of interactions between the electromagnetic radiation and atmosphere and they affect data collected using remote sensing (10 marks)
- b) Briefly explain the pre-processing stages of radiometric and geometric correction that are applied to remotely sensed data (10 marks)

QUESTION FIVE (20 MARKS)

Discuss the importance of remote sensing in the management of natural resources in Kenya.